

**REMARKS**

Claims 1 through 12 were presented for examination in the present application. The instant amendment cancels claims 7, 11, and 12 without prejudice and adds new claims 13 through 18. Thus, claims 1 through 6, 8 through 10, and 13 through 18 are presented for examination upon entry of the instant amendment.

Claim 5 has been amended to correct an obvious error, namely to change “claims” to “claim”.

Figures 12(a), 12(b), 13, and 14 have been amended to include the caption “Prior Art” as requested by the Examiner. Accordingly, reconsideration and withdrawal of the objection to the drawings are respectfully requested.

Claims 3, 4, 8, and 9 have been amended to ensure proper antecedent basis for all claim elements. It is submitted that these amendments merely make explicit what had been implicit in the claims. Reconsideration and withdrawal of the objections to the claims are respectfully requested.

Claims 1 through 12 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,331,381 to Chaudhari et al. (Chaudhari).

Independent claim 1 recites that the masks include “an edge in a shape based on the orientation direction at each position of the alignment layer” and has been amended to recite that the shape is “defined across an entire width of the alignment layer” (emphasis added).

Chaudhari discloses a mask having an opening with a shape that is modified in the border region between two ion sources. Specifically, Chaudhari discloses that in the dual ion source system of the present invention the ends 3, 4 of each mask that are proximate the border portion are shaped to accommodate the overlap region to allow a smooth transition from the first ion beam source 1 to the second ion beam source 2 in the overlap/border portion. See col. 4, lines

45-55. Clearly, the shaped ends only in the border region of Chaudhari do not disclose or suggest that shape that is defined across an entire width of the alignment layer as now recited by claim 1.

Claim 1 is therefore believed to be in condition for allowance. Claims 2 through 5 are also believed to be in condition for allowance for at least the reason that they depend from the aforementioned claim 1. Reconsideration and withdrawal of the rejections to claims 1 through 5 are respectfully requested.

Independent claim 6 now includes the features of claim 7. Claim 7 has been cancelled without prejudice. Independent claim 6 now recites that the shape of the edge projected on the substrate is determined by “integrating the orientation direction of liquid crystals in forming an alignment layer using a linear edge perpendicular to a moving direction of the substrate along the linear edge”.

It is respectfully submitted that the objective of Chaudhari is to concatenate ion guns and to minimize the discontinuity of beam trajectory at the concatenating portion of two guns. As such, Chaudhari discloses, with reference to Figure 7, that the first ion beam gun 1 and a second ion beam gun 2 are aligned with overlapping concatenation. The ends 3, 4 of each mask that are proximate the border portion are shaped to accommodate the overlap region. The triangular portions of the mask layer allows a smooth transition from the first ion beam source 1 to the second ion beam source 2 in the overlap/border portion. It is respectfully submitted that Chaudhari assumes that the trajectory of ion beam is uniform along gun's main axis except at the ends and, thus, only requires the mask to control the amount of dose at these ends.

In contrast, the objective of the present application is to compensate the unevenness of the direction of trajectory of ion beam along the gun's main axis. Thus, the present application assumes that the trajectory of ion beam is not uniform along gun's main axis. Accordingly, it is respectfully submitted that determining the shape of the edge projected on said substrate integrating the orientation direction of liquid crystals in forming an alignment layer using a linear edge perpendicular to a moving direction of the substrate along the linear edge as recited by

claim 6 is not disclosed or suggested by Chaudhari.

Claim 6 is therefore believed to now be in condition for allowance. Claims 8 through 10 are also believed to be in condition for allowance for at least the reason that they depend from the aforementioned claim 6. Reconsideration and withdrawal of the rejections to claims 6 and 8 through 10 are respectfully requested.

Claims 11 and 12 have been cancelled, rendering the rejection to the same moot. Reconsideration and withdrawal of the rejection to claims 11 and 12 are respectfully requested.

Claims 13 through 18 have been added to point out various aspects of the present application. Support for claims 13 through 18 can be found in the specification at least at page 9 lines 4-23, as well as in Figure 10a. Claims 13 through 18 are believed to be in condition for allowance.

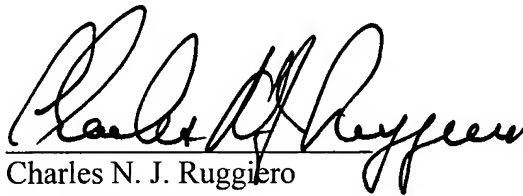
For example, independent claim 13 requires a mask that is “deformed in a plane perpendicular to the substrate.” Again, Chaudhari discloses a mask having an opening with shape ends. However, the shaped ends of Chaudhari are merely shaped in a plane parallel to the substrate as best seen in Figure 5a. It is respectfully submitted that Chaudhari simply does not disclose or suggest a mask that is deformed in a plane perpendicular to the substrate as in claim 13. Accordingly, independent claim 13, as well as claims 14 through 18 that depend therefrom, are believed to be in condition for allowance.

In addition, claims 14 and 17 require “an external force” that is “exerted on the mask for deforming the mask”. Claims 15 and 18 require the mask to be “dynamically deformable”. It is respectfully submitted that Chaudhari simply does not disclose or suggest the “external force” of claims 14 and 17 or the “dynamically deformable” mask of claims 15 and 18. Accordingly, claims 14, 15, 17, and 18 are also believed to be in condition for allowance.

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Such action is solicited. If for any reason the Examiner feels that consultation with Applicants' attorney would be helpful in the advancement of the prosecution, the Examiner is invited to call the telephone number below.

Respectfully submitted,

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**AMENDMENTS TO THE DRAWINGS:**

The two attached sheets of drawings include changes to FIGS. 12(a), 12(b), 13, and 14. These sheets replace the original sheets including FIGS. 12(a), 12(b), 13, and 14. These figures have amended to include the caption "Prior Art".



# **REPLACEMENT SHEETS**